

# **Importation of Persimmons, *Diospyros kaki*, from Spain into the United States**

**A Qualitative, Pathway-Initiated Pest Risk Assessment**

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## A. Introduction

**Anecoop S. Cooperatives** of Valencia, Spain requested Joseph F. Karpati of Katy, TX to assist Benito Orihuel Iranzo, Anecoop's Director of Quality and Systems in the preparation of this pest risk assessment to examine plant pest risks associated with the importation into the United States of **fresh persimmons (*Diospyros kaki*) grown in Spain**. The assistance and advice of Dr. Luis M. Esteruelas, Agricultural Counselor, Embassy of Spain, Washington, DC, is acknowledged and greatly appreciated. This is a qualitative pest risk assessment in which estimates of risk are expressed in qualitative terms such as high, medium or low rather than in numerical terms such as probabilities or frequencies. The details of methodology and rating criteria can be found in: Pathway-Initiated Pest Risk Assessment: Guidelines for Qualitative Assessments, version 5.0 (USDA, 2000).

International plant protection organizations such as the North American Plant Protection Organization (NAPPO) and the International Plant Protection Convention (IPPC) of the United Nations Food and Agriculture Organization (FAO) provide guidance for conducting pest risk analyses. The methods used to initiate, conduct, and report this pest risk assessment are consistent with guidelines provided by NAPPO, IPPC and FAO. The use of biological and phytosanitary terms conforms with the NAPPO Compendium of Phytosanitary Terms (Hopper, 1996) and the Definitions and Abbreviations (Introduction Section) in International Standards for Phytosanitary Measures, Section I-Import Regulations: Guidelines for Pest Risk Analysis (FAO 1996).

## B. Risk Assessment

### 1. Initiating Event: Proposed Action

This pest risk assessment is commodity-based, and therefore, pathway-initiated. The assessment is in response to a request for USDA authorization to allow imports of a particular commodity presenting a potential plant pest risk. In this case, the importation into the United States of **fresh persimmons (*Diospyros kaki*) grown in Spain** is a potential pathway for introduction of plant pests. Title 7 of the Code of Federal Regulations 319, Part 56 (7CFR-319.56) provides regulatory authority for the importation of fruits and vegetables from foreign sources into the United States.

## 2. Assessment of Weediness Potential of Persimmon, *Diospyros kaki*

The results of the weediness screening for *Diospyros kaki* (Table 1) did not prompt a pest-initiated risk assessment.

Table 1: Process for Determining Weediness Potential of Commodity
<b>Commodity:</b> <i>Diospyros kaki</i> L. (Ebenaceae) Persimmon.
<b>Phase 1:</b> <i>Diospyros kaki</i> L. is cultivated on a limited basis in the United States, <i>D. texana</i> Scheele and <i>D. virginiana</i> L. are more prevalent.
<b>Phase 2:</b> Is the genus or species or subspecies or variety listed as a weed in: <u>No</u> Geographical Atlas of World Weeds (Holm <i>et al.</i> , 1979) or World Weeds: Natural Histories and Distribution (Holm <i>et al.</i> , 1997) <u>No</u> World's Worst Weeds (Holm <i>et al.</i> , 1977) <u>No</u> Report of the Technical Committee to Evaluate Noxious Weeds; Exotic Weeds for Federal Noxious Weed (Gunn and Ritchie, 1982) <u>No</u> Economically Important Foreign Weeds (Reed, 1977) <u>No</u> Weed Science Society of America list (WSSA, 1989) <u>No</u> Is there any literature reference indicating weediness ( <i>e.g.</i> , AGRICOLA, CAB, Biological Abstracts, AGRIS; search on "species name" combined with "weed").
<b>Phase 3: Conclusion:</b> <i>D. texana</i> Scheele and <i>D. virginiana</i> L. are natives of the United States. Neither of these qualifies as a Federal Noxious Weed; additional imports would be unlikely to pose a weed risk.

## 3. Previous Risk Assessments, Current Status and Pest Interceptions

### Decision History for *Diospyros kaki* :

Persimmons are permitted entry into the United States from Italy, Israel and Chile with treatment – T107(a).

### Interceptions from Spain for FY 1985-1999 for Persimmons:

No interceptions are on record.

### Pest Categorization - Identification of Quarantine Pests and Quarantine Pests Likely to Follow the Pathway

Table 2 shows the pest list for *Diospyros kaki* from Spain. The tables were developed after a review of some of the information sources listed in USDA (2000). The list summarizes information on the distribution of each pest, pest-commodity association, and regulatory history.

Table 2: Pests of <i>Diospyros kaki</i> in Spain					
Pest	Geographic Distribution <sup>1</sup>	Plant Part Affected	Quarantine Pest	Likely To Follow Pathway	References
<b>ARTHROPODS</b>					
<b>COLEOPTERA</b>					
<b>Curculionidae</b>					
<i>Pantomorus cervinus</i> (Boheman)	SP, US	L	Yn	N	CIE 214
<b>DIPTERA</b>					
<b>Tephritidae</b>					
<i>Ceratitis capitata</i> (Wiedemann)	SP, US (HI)	F	Yn	Y	IIE1
<b>HOMOPTERA</b>					
<b>Aleyrodidae</b>					
<i>Dialeurodes citri</i> (Ashmed)	SP, US	L, F	Nc	N	CPC; USDA, 1978
<i>Parabemisia myricae</i> (Kuwana)	SP, US	L	Yn	N	CIE 479
<b>Pseudococcidae</b>					
<i>Pseudococcus longispinus</i> (Targioni-Tozzetti)	SP, US	L, S	N	N	CIE 93; USDA, 1978
<b>LEPIDOPTERA</b>					
<b>Noctuidae</b>					
<i>Sesamia nonagrioides</i> Lefebvre	SP	L, F	Y	N	CIE 399; CPC
<b>Tortricidae</b>					
<i>Lobesia botrana</i> (Denis & Schiffermuller)	SP	F, L	Y	N	CIE 1974; INKTO; CPC
<b>THYSANOPTERA</b>					
<b>Thripidae</b>					
<i>Heliothrips haemorrhoidalis</i> Bouché	SP, US	L	Nc	N	CIE 135
<b>ACARI</b>					
<b>Eriophyidae</b>					
<i>Colomerus vitis</i> (Pagenstcher)	SP, US	L	Nc	N	CPC
<b>BACTERIA</b>					
<i>Agrobacterium tumefaciens</i> (Smith & Towns) Conn	SP, US	L, F	Nc	N	CMI
<b>FUNGI</b>					
<i>Glomerella cingulata</i> (Stoneman) Spaud & H. Schrenk (Pyrenomycetes: Hypocreales)	SP, US	L, F	Nc	N	Farr et al, 1989
<i>Monilinia fructigena</i> Honey in Whetzel (Ascomycetes: Leotiales)	SP	F,L	Yn	Y	PNKTO; CPC
<b>Nematodes</b>					
<b>Hoplolaimidae</b>					

<i>Helicotylenchus pseudorobustus</i> (Steiner) Golden	SP, US	R	N	N	CPC, 1999
Trichodoridae					
<i>Trichodorus spp.</i>	SP, US	L, R	N	N	CPC, 1999

<sup>1</sup>Distribution: SP - Spain, US - United States

L-Leaves, S-Stem, W-Whole plant, F-Fruit, Fa -Fruit (adult stage only), Y-Yes, N-No, Yn-Listed in the USDA catalog of intercepted pests as 'Actionable', Nc-Listed in the non- reportable dictionary as 'Non-Actionable'

Any pest species listed in the above pest list that has a -Y- in the -Quarantine Pest- column, is considered to be quarantine pest of persimmon from Spain. Should any of these pests be intercepted on commercial (or any other) shipments of *Diospyros kaki* fruit, quarantine action may be taken.

Only those quarantine pests that can reasonably be expected to follow the pathway, i.e., be included in commercial shipments of *Diospyros kaki* fruit, were analyzed in detail. Only quarantine pests that have a -Y- in the -Likely to Follow Pathway- column AND a -Y- in the -Quarantine Pest- column were selected for further analysis and subjected to steps 5-7 below (USDA, 2000).

Other plant pests in this Assessment, not chosen for further scrutiny, may be potentially detrimental to the agricultural production systems of the United States; however, there were a variety of reasons for not subjecting them to further analysis. For example, they are associated mainly with plant parts other than the commodity; they may be associated with the commodity (however, it was not considered reasonable to expect these pests to remain with the commodity during processing), or they have been intercepted as biological contaminants of these commodities during inspection by Plant Protection and Quarantine Officers but would not be expected to be present with every shipment. In addition, the biological hazard of organisms identified only to the generic level is not assessed due to the lack of adequate biological/taxonomic information. This lack of biological information on any given insect or pathogen should not be equated with low risk. By necessity, pest risk assessments focus on those organisms for which biological information is available. By developing detailed assessments for known pests that inhabit a variety of niches on the parent species, i.e., on the surface of or within the bark/wood, on the foliage, *etc.*, effective mitigation measures can be developed to eliminate the known organism and any similar unknown ones that inhabit the same niches.

## 5. Consequences of Introduction

The consequences of introduction (Table 3) was considered for each quarantine likely to follow the pathway. Each pest is rated on five biological features (Risk Elements, REs) (USDA (2000) The cumulative score for Risk Elements is considered to be a biological indicator of the potential destructiveness of the pest.



Table 3: Risk Rating for Consequences of Introduction: (Risk Elements #1-5)						
Pest	Climate/ Host Interaction	Host Range	Dispersal Potential	Economic Impact	Environ- mental Impact	Risk Rating
<i>Ceratitidis capitata</i>	High	High	High	High	High	High
<i>Monilinia fructigena</i>	High	High	High	Low	Medium	Medium

## 6. Introduction Potential

Each pest is rated with respect to likelihood of introduction based on two separate components. First, an estimate is made concerning the amount of commodity likely to be imported (RE 6). Second, pest opportunity (RE 7) is estimated using five biological features. Details of the two REs and the rating criteria are provided in USDA (2000). These ratings and the cumulative (Total) score for Risk Elements 6 and 7, *i.e.*, the -Likelihood of Introduction Risk Rating- are shown in Table 4.

Table 4: Risk Rating for Likelihood of Introduction.: (Risk Elements #6 and #7)							
Pest	Quantity imported annually	Likelihood of surviving postharvest treatment	Likelihood of surviving shipment	Likelihood not detected at port of entry	Likelihood of moving to suitable habitat	Likelihood of finding suitable host	Risk rating
<i>Ceratitidis capitata</i>	Medium	High	High	Medium	High	High	High
<i>Monilinia fructigena</i>	Medium	High	Medium	Medium	Medium	High	Medium

## 7. Conclusion: Pest Risk Potential and Phytosanitary Measures

The measure of pest risk potential combines the risk ratings for consequences and likelihood of introduction (USDA, 2000). The estimated pest risk potential for each quarantine pest selected for further analysis for the importation of *Diospyros kaki* fruit is provided in Table 5.

Table 5: Pest Risk Potential	
<i>Ceratitidis capitata</i>	High
<i>Monilinia fructigena</i>	Medium

Plant pests with a high Pest Risk Potential may require specific phytosanitary measures. The choice of appropriate sanitary and phytosanitary measures to mitigate risks is undertaken as part of Risk Management and is not addressed, *per se*, in this document.

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